

(19)日本国特許庁(JP)

(12) 公開特許公報(A)

(11)特許出願公開番号

特開平5-269292

(43)公開日 平成5年(1993)10月19日

(51)IntCl.<sup>5</sup>  
D 0 6 F 37/40

識別記号 庁内整理番号  
B 6704-3B

F I

技術表示箇所

審査請求 未請求 請求項の数1(全 6 頁)

(21)出願番号 特願平4-70875

(22)出願日 平成4年(1992)3月27日

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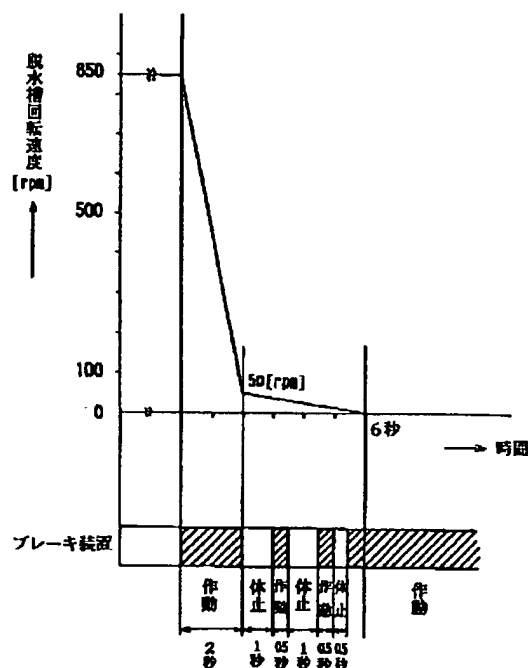
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(54)【発明の名称】 洗濯機

(57)【要約】

【目的】 脱水槽を、騒音や洗濯機全体の移動を伴わずに、充分迅速に停止させることができるようにする。

【構成】 脱水槽を制動するブレーキ装置を具備すると共に、脱水槽の回転速度を検知する回転速度センサを具備し、そして、脱水槽を制動させるときに、ブレーキ装置を作動させて以後、回転速度センサによる検知結果から脱水槽の回転速度が所定値まで降下したと判断されたときに、以後、ブレーキ装置を間欠的に作動させる制御をする制御手段を具備した。



## 【特許請求の範囲】

【請求項1】 脱水槽をモータにより回転駆動して洗濯物の脱水をするものにおいて、その脱水槽を制動するブレーキ装置と、脱水槽の回転速度を検知する回転速度検知手段とを具備すると共に、脱水槽を制止させるときに、ブレーキ装置を作動させて以後、回転速度検知手段による検知結果から脱水槽の回転速度が所定値まで低下したと判断されたときに、以後、ブレーキ装置を間欠的に作動させる制御をする制御手段を具備したことを特徴とする洗濯機。

## 【発明の詳細な説明】

## 【0001】

【産業上の利用分野】 本発明は脱水槽を制動する構成について改良を施した洗濯機に関する。

## 【0002】

【従来の技術】 従来より、例えば脱水兼用洗濯機においては、洗濯槽を兼ねる脱水槽をモータにより回転駆動し、その遠心力によって洗濯物の脱水をするようにしている。

【0003】 しかして、このものにおいては、脱水中や脱水終了間際に蓋を開けたとき、危険回避の必要から、ブレーキ装置を作動させて脱水槽を制動するようにしている。この場合、脱水槽はより速やかに停止するものの方が良く、そこで、ブレーキ装置の制動力を増大させ、脱水槽を迅速に停止させることが行なわれている。

## 【0004】

【発明が解決しようとする課題】 しかしながら、上述のようにブレーキ装置の制動力を増大させて脱水槽を迅速に停止させるようにしたものでは、脱水槽制止時の衝撃、反動が大きく、騒音や、場合によっては洗濯機全体の移動を伴うおそれを有していた。

【0005】 このため、実際には、脱水槽に制動力を適度に与えるようになっており、しかし、この場合には、図4に示すように、脱水槽に制動力を与えてから脱水槽が完全に停止するまでに10秒ほどの時間をかける必要があり、脱水槽を迅速に停止させ得ないという問題点を有していた。

【0006】 本発明は上述の事情に鑑みてなされたものであり、従ってその目的は、脱水槽を、洗濯機全体の移動や転倒を伴わずに、充分迅速に停止させることのできる洗濯機を提供するにある。

## 【0007】

【課題を解決するための手段】 上記目的を達成するために、本発明の洗濯機においては、脱水槽をモータにより回転駆動して洗濯物の脱水をするものにおいて、その脱水槽を制動するブレーキ装置を具備する以外に、脱水槽の回転速度を検知する回転速度検知手段を具備し、そして、脱水槽を制止させるときに、ブレーキ装置を作動させて以後、回転速度検知手段による検知結果から脱水槽の回転速度が所定値まで低下したと判断されたときに、

以後、ブレーキ装置を間欠的に作動させる制御をする制御手段を具備したことを特徴とする。

## 【0008】

【作用】 上記手段によれば、脱水槽を制止させるとき、脱水槽の回転速度が所定値に低下するまでは、ブレーキ装置をフルに作動させ、所定値に低下してからは、間欠的に作動させることにより、停止間際に制動力を緩めることによって、いわゆる急ブレーキがかかることを避け、脱水槽を、衝撃、反動少なく、速やかに停止させることができる。

## 【0009】

【実施例】 以下、本発明の一実施例につき、図1ないし図3を参照して説明する。

【0010】 まず図2には、洗濯機、中でも脱水兼用洗濯機の構成を示しており、外箱1内に水槽2を弾性吊持機構3により支持して配設し、水槽2内に洗濯槽を兼ねる脱水槽4を配設している。脱水槽4は周囲部に脱水孔5を多数有しており、内底部に攪拌体6を配設している。

【0011】 又、水槽2外の下方部には、駆動機構7を配設している。この駆動機構7は、モータ8、クラッチ装置9、及びブレーキ装置10によって構成しており、それらによって、洗濯時に上記脱水槽4を制止して攪拌体6を回転駆動し、脱水時に脱水槽4を攪拌体6と共に回転駆動するようにしている。

【0012】 更に、上記ブレーキ装置10は、脱水槽4と回転をともにするブレーキドラム11と、これに巻装したブレーキバンド12、及びブレーキバンド12を図示しないワイヤで引いてブレーキドラム11から離間させることにより脱水槽4の制動を解くギヤードモータから成るブレーキモータ13により構成しており、上述のように洗濯時に脱水槽4を制止すると共に、脱水時に脱水槽4の制止を解き、そして、後述する蓋開放時に回転中の該脱水槽4を制動停止させるようになっている。

【0013】 なお、上記ブレーキバンド12の内周部には図示しないブレーキシューがあり、これの大きさ（面積）を従来のものの2倍にしている。又、ブレーキバンド12は図示しないスプリングにより上記ブレーキシューをブレーキドラム11に圧接させるように付勢されており、該スプリングの線径（直径）を従来のものの1.2 [mm] から2.0 [mm] と大きくしており、これらによって、ブレーキ装置10の制動力を従来のものより大幅に増大させている。

【0014】 又、モータ8には、詳しくは図示しないが、その回転軸と共に回転する磁石盤と、これと対応するホール素子等の回転位置検知装置とから成る回転速度センサ14を、モータ8の回転速度ひいては脱水槽4の回転速度を検知する回転速度検知手段として装設している。

【0015】 このほか、水槽2外の下方部には、水槽2

内から排水するための排水弁15及び排水ホース16をも配設しており、前記ブレーキモータ13は、脱水槽4の制動を解くと同時に、クラッチ装置9をモータ8の駆動力が脱水槽4及び攪拌体6に伝わるように切換え、そして、上記排水弁15を開放させるようになっている。

【0016】一方、外箱1上にはトップカバー17を装着しており、これの中央部に洗濯物出入口18を形成すると共に、該出入口18を開閉する蓋19を収設し、その後方部に、脱水槽4内に給水する給水弁20と、水槽2内の水位を検知する水位センサ21とを内設している。

【0017】そして更に、上記トップカバー17の前部には制御装置22を内設している。この制御装置22はブレーキ装置10を後述のごとく制御する制御手段として機能するもので、マイクロコンピュータから成っており、図3に示すように、各種操作スイッチから成る操作部23より操作信号が入力されると共に、上記蓋19の開閉に応動する蓋スイッチ24より蓋開閉信号が入力され、更に、上記水位センサ21より水位検知信号が、又、前記回転速度センサ14より回転速度検知信号がそれぞれ入力されるようになっている。

【0018】しかして、制御装置22は、それらの入力並びにあらかじめ記憶された制御プログラムに基づいて、各種表示素子から成る表示部25と、前記給水弁20、駆動機構7のモータ8、及びブレーキモータ13をそれぞれ駆動する駆動回路26〜29に駆動制御信号を与えるようになっている。

【0019】そこで、以下には、上記制御装置22による脱水中での蓋19開放時の制御内容について、図1を参照しながら述べる。

【0020】既述のように、制御装置22は、脱水時には、ブレーキモータ13に通電することにより、ブレーキ装置10による脱水槽4の制動を解くと共に、排水弁15を開放させ、そして、クラッチ装置9をモータ8の駆動力が脱水槽4及び攪拌体6に伝わるように切換えるもので、それにより、脱水槽4が攪拌体6と共に回転駆動され、その回転速度は図1に示すように850 [rpm] に達する。

【0021】この状況で、蓋19が開放されると、蓋スイッチ24が作動することにより、制御装置22はその蓋19の開放を認識して、ブレーキモータ13を断電し、ブレーキ装置10を作動状態にして、脱水槽4にフルに制動力を与える。

【0022】これによって、脱水槽4の回転速度は急速に降下し、2秒ほどで、所定の回転速度である50 [rpm] に達する。すると、制御装置22は、それを回転速度センサ14からの回転速度検知信号により認識して、ブレーキモータ13に通電し、ブレーキ装置10による脱水槽4の制動を解除する。そして、その1秒後には、

ブレーキモータ13を断電し、ブレーキ装置10を作動状態にして、脱水槽4に再び制動力を与える。そして更に、その0.5秒後には、ブレーキモータ13に通電し、ブレーキ装置10による脱水槽4の制動を解除する。以後、このブレーキモータ13の通電による脱水槽4の制動解除を1秒、断電による脱水槽4の制動を0.5秒、通電による脱水槽4の制動解除を0.5秒行なうと、その後、ブレーキモータ13に通電し続け、脱水槽4を制止し続ける。

【0023】なお、上記脱水槽4の制動解除を脱水槽4の制動と交互に僅少時間(1秒又は0.5秒)ずつ行なうことにより、ブレーキドラム11からはブレーキバンド12を完全に離間させず緩める程度にし、この状態で再度脱水槽4に制動力を与えるようにしている。

【0024】このように本構成のものでは、脱水槽4を制止させるとき、脱水槽4の回転速度が所定値である50 [rpm] に降下するまでは、ブレーキ装置10をフルに作動させ、50 [rpm] に降下してからは、間欠的に作動させるようにしたもので、それにより、停止間際に制動力を緩めることになって、いわゆる急ブレーキがかかることが避けられるから、脱水槽4を、衝撃、反動少なく、図1に示すように6秒ほどで速やかに停止させることができるようになり、安全性を向上させることができる。

【0025】又、本構成のものの場合、外箱1の共振点である200〜100 [rpm] のところも、短時間で通過するようになるから、その外箱1の共振振動を少なくすることもできる。

【0026】なお、本発明は上記し且つ図面に示した実施例にのみ限定されるものではなく、特に脱水槽4制動時のブレーキ装置10を間欠的に作動させる折りの具体的時間や具体的回数、あるいは脱水兼用洗濯機以外、例えば二槽式洗濯機への適用、その他の点につき、要旨を逸脱しない範囲内で適宜変更して実施し得る。

【0027】

【発明の効果】以上の記述で明らかなように、本発明の洗濯機は、脱水槽をモータにより回転駆動して洗濯物の脱水をするものにおいて、その脱水槽を制動するブレーキ装置を具備する以外に、脱水槽の回転速度を検知する回転速度検知手段を具備し、そして、脱水槽を制止させるときに、ブレーキ装置を作動させて以後、回転速度検知手段による検知結果から脱水槽の回転速度が所定値まで降下したと判断されたときに、以後、ブレーキ装置を間欠的に作動させる制御をする制御手段を具備したことを特徴とするものであり、それによって、脱水槽を、騒音や洗濯機全体の移動を伴わずに、充分迅速に停止させることができ、安全性を向上させ得るという優れた効果を奏する。

【図面の簡単な説明】

【図1】本発明の一実施例を示すタイムチャートと合わ

せた特性図

【図2】全体の破断側面図

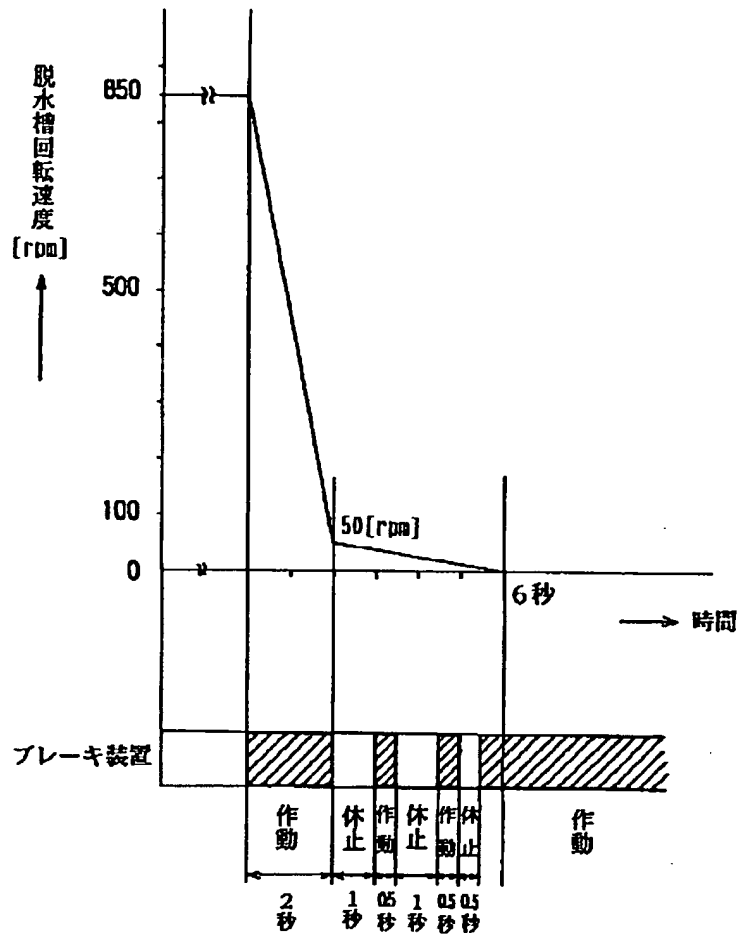
【図3】概略電気構成図

【図4】従来例を示す図1相当図

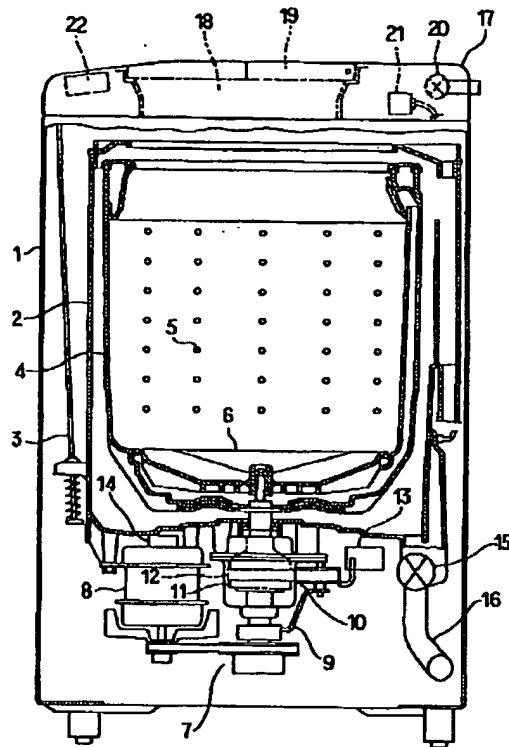
【符号の説明】

4は脱水槽、8はモータ、10はブレーキ装置、14は回転速度センサ（回転速度検知手段）、22は制御装置（制御手段）を示す。

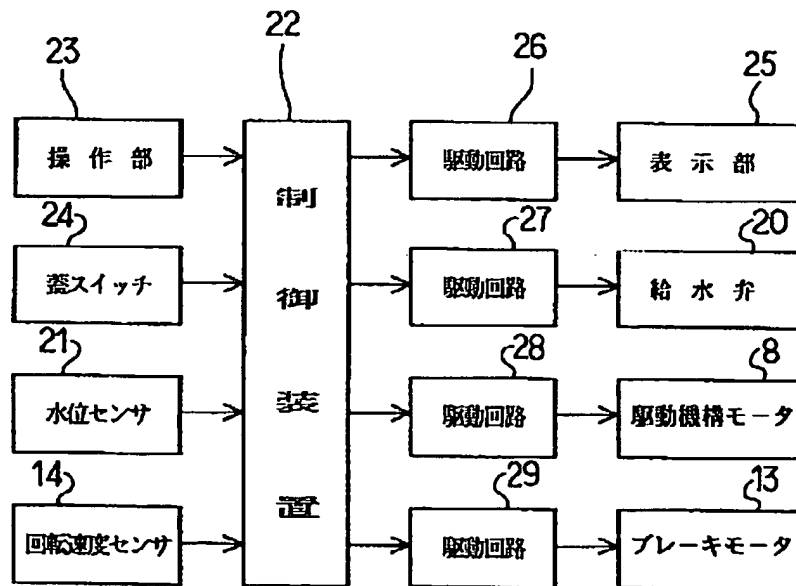
【図1】



【図2】



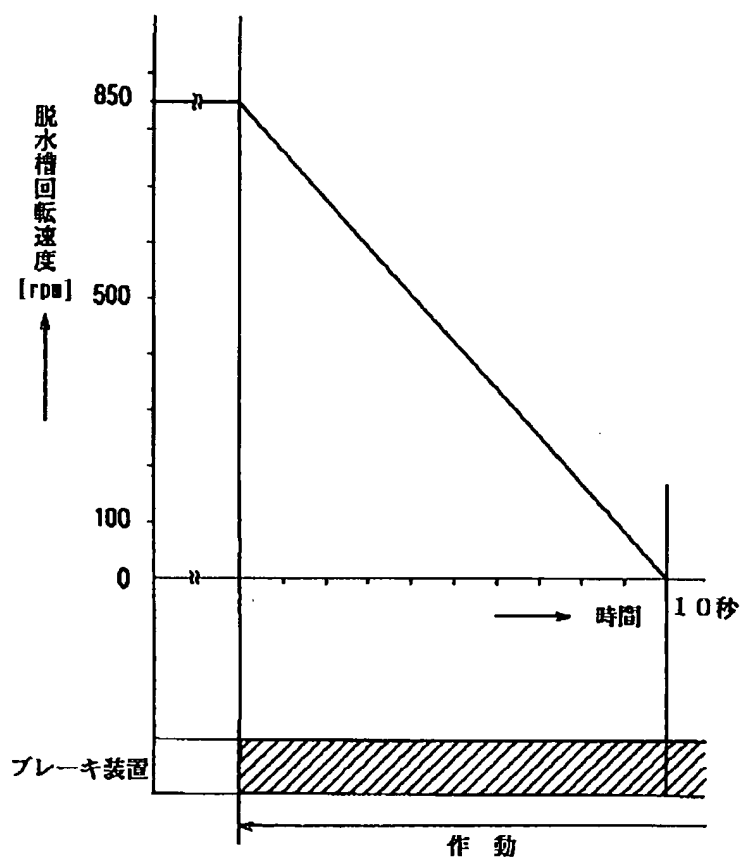
【図3】



(6)

特開平5-269292

【図4】



PAT-NO: JP405269292A  
DOCUMENT-IDENTIFIER: JP 05269292 A  
TITLE: WASHING MACHINE  
PUBN-DATE: October 19, 1993

## INVENTOR-INFORMATION:

NAME COUNTRY  
MIWA, YOSHIYUKI

## ASSIGNEE-INFORMATION:

NAME COUNTRY  
TOSHIBA CORP N/A

APPL-NO: JP04070675  
APPL-DATE: March 27, 1992

INT-CL (IPC): D06F037/40

## ABSTRACT:

PURPOSE: To speedily stop a spinning tub free from noise and the shift of the whole of a washing machine by intermittently operating a brake device when it is judged from the result of the detection by a revolution speed sensor, that the revolution speed of the spinning tub lowers to a prescribed value after the brake device is operated.

CONSTITUTION: A controller 22 permits the electric conduction of a brake motor 13 in dewatering and releases the restraint for a spinning tub 4 by a brake device 10, and opens a drain valve 15, and selects a clutch device 9 for the transmission of the drive force of a motor 8 to the spinning tub 4 and an agitator body 6. When a cover 19 is opened, a cover switch operates, and the controller 22 recognizes the opening of the cover 19, and puts the brake device 10 to an operation state, and fully applies a control force to the spinning tub 4. Accordingly, when the revolution speed of the spinning tub 4 reaches a prescribed value, the controller 22 recognizes this state from the revolution speed detection signal of the revolution speed sensor 14, and operates the brake device 10 intermittently.

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File: DWPI

Oct 19, 1993

DERWENT-ACC-NO: 1993-364380

DERWENT-WEEK: 199346

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TITLE: Washer for rapidly stopping dewatering tank without noise generation -  
comprises dewatering tank brake and rotation speed sensor and controller to actuate  
brake

## PATENT-ASSIGNEE:

ASSIGNEE

CODE

TOSHIBA KK

TOKE

PRIORITY-DATA: 1992JP-0070675 (March 27, 1992)[Search Selected](#)[Search ALL](#)[Clear](#)

## PATENT-FAMILY:

PUB-NO	PUB-DATE	LANGUAGE	PAGES	MAIN-IPC
<input type="checkbox"/> <u>JP 05269292 A</u>	October 19, 1993		006	D06F037/40

## APPLICATION-DATA:

PUB-NO	APPL-DATE	APPL-NO	DESCRIPTOR
JP 05269292A	March 27, 1992	<u>1992JP-0070675</u>	

INT-CL (IPC): D06F 37/40

ABSTRACTED-PUB-NO: JP 05269292A

## BASIC-ABSTRACT:

Washer comprises a brake for a dewatering tank, a rotation speed sensor for the dewatering tank, and a controller to actuate the brake intermittently, when the rotation speed of the dewatering tank is a specified value.

ADVANTAGE - The dewatering tank may be stopped rapidly without generating noise or movement of the whole body of the washer.

CHOSEN-DRAWING: Dwg.0/4

TITLE-TERMS: WASHER RAPID STOP DEWATER TANK NOISE GENERATE COMPRISE DEWATER TANK  
BRAKE ROTATING SPEED SENSE CONTROL ACTUATE BRAKE

DERWENT-CLASS: F07 X27

CPI-CODES: F03-J01;



EPI-CODES: X27-D01A;

SECONDARY-ACC-NO:

CPI Secondary Accession Numbers: C1993-161118

Non-CPI Secondary Accession Numbers: N1993-281692

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## PATENT ABSTRACTS OF JAPAN

(11)Publication number : 05-269292

(43)Date of publication of application : 19.10.1993

(51)Int.Cl.

D06F 37/40

(21)Application number : 04-070675

(71)Applicant : TOSHIBA CORP

(22)Date of filing : 27.03.1992

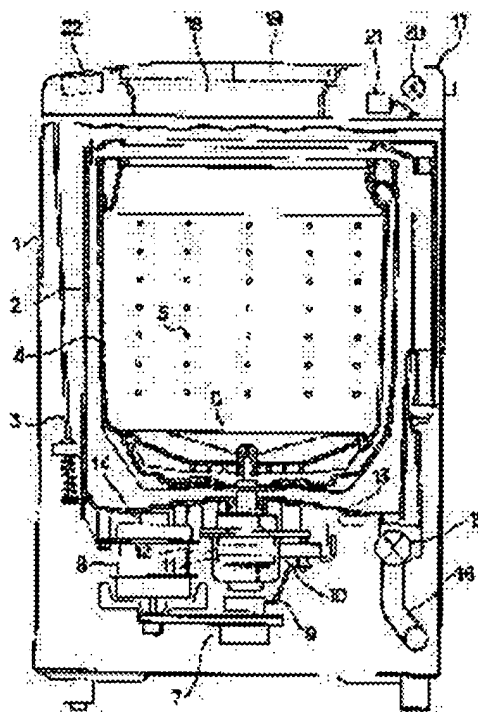
(72)Inventor : MIWA YOSHIYUKI

### (54) WASHING MACHINE

#### (57)Abstract:

**PURPOSE:** To speedily stop a spinning tub free from noise and the shift of the whole of a washing machine by intermittently operating a brake device when it is judged from the result of the detection by a revolution speed sensor, that the revolution speed of the spinning tub lowers to a prescribed value after the brake device is operated.

**CONSTITUTION:** A controller 22 permits the electric conduction of a brake motor 13 in dewatering and releases the restraint for a spinning tub 4 by a brake device 10, and opens a drain valve 15, and selects a clutch device 9 for the transmission of the drive force of a motor 8 to the spinning tub 4 and an agitator body 6. When a cover 19 is opened, a cover switch operates, and the controller 22 recognizes the opening of the cover 19, and puts the brake device 10 to an operation state, and fully applies a control force to the spinning tub 4. Accordingly, when the revolution speed of the spinning tub 4 reaches a prescribed value, the controller 22 recognizes this state from the revolution speed detection signal of the revolution speed sensor 14, and operates the brake device 10 intermittently.



### LEGAL STATUS

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[Date of final disposal for application]

[Patent number]

[Date of registration]

[Number of appeal against examiner's decision of rejection]

[Date of requesting appeal against examiner's decision of rejection]

[Date of extinction of right]

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CLAIMS

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[Claim(s)]

[Claim 1] While providing the brake gear which brakes the dehydration tack, and a rotational-speed detection means to detect the rotational speed of a dehydration tack, in what carries out the rotation drive of the dehydration tack by the motor, and dehydrates the washing The washing machine characterized by providing the control means which carries out control which operates a brake gear intermittently henceforth when it is judged that the rotational speed of a dehydration tack descended from the detection result by the rotational-speed detection means to the predetermined value, after operating a brake gear, when making a dehydration tack control.

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DETAILED DESCRIPTION

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[Detailed Description of the Invention]

[0001]

[Industrial Application] This invention relates to the washing machine which improved about the configuration which brakes a dehydration tack.

[0002]

[Description of the Prior Art] Conventionally for example, in a dehydration combination washing machine, the rotation drive of the dehydration tack which serves as laundry sink is carried out by the motor, and it is made to dehydrate the washing according to the centrifugal force.

[0003] When a deer is carried out and a lid is opened under dehydration and just before dehydration termination in this thing, he operates a brake gear and is trying to brake a dehydration tack from the need for risk aversion. In this case, although a dehydration tack stops more promptly, its direction is good, and increasing the damping force of a brake gear and stopping a dehydration tack quickly there is performed.

[0004]

[Problem(s) to be Solved by the Invention] However, in the thing increases the damping force of a brake gear as mentioned above, and it was made to stop a dehydration tack quickly, the impact at the time of dehydration tack inhibition and counteraction were large, and it had fear accompanied by migration of the whole washing machine depending on the noise and the case.

[0005] For this reason, damping force was moderately given to the dehydration tack, however in fact, as shown in drawing 4 in this case, after giving damping force to a dehydration tack before the dehydration tack stopped completely, the time amount for about 10 seconds needed to be spent, and it had the trouble that a dehydration tack could not be stopped quickly.

[0006] This invention is made in view of an above-mentioned situation, therefore the purpose is in offering the washing machine which can be made to suspend a dehydration tack sufficiently quickly, without being accompanied by migration and a fall of the whole washing machine.

[0007]

[Means for Solving the Problem] In order to attain the above-mentioned purpose, it sets in the washing machine of this invention. Are in some which carry out the rotation drive of the dehydration tack by the motor, and dehydrate the washing, provide a rotational-speed detection means to detect the rotational speed of a dehydration tack besides providing the brake gear which brakes the dehydration tack, and when making a dehydration tack control After operating a brake gear, when it is judged that the rotational speed of a dehydration tack descended from the detection result by the rotational-speed detection means to the predetermined value, it is henceforth characterized by providing the control means which carries out control which operates a brake gear intermittently.

[0008]

[Function] by making it operate intermittently, after operating a brake gear fully and descending to a predetermined value until the rotational speed of a dehydration tack descends to a predetermined value according to the above-mentioned means, when making a dehydration tack control, damping force will

be loosened just before a halt and the so-called brake is slammed -- avoiding -- a dehydration tack -- an impact and counteraction -- it can be few and can be made to stop promptly

[0009]

[Example] Hereafter, it explains with reference to drawing 1 per example of this invention thru/or drawing 3.

[0010] First, the configuration of a dehydration combination washing machine is shown also in the washing machine, it arranges in support of a tank 2 according to the elastic lifting-and-holding device 3 in a tank 1, and the dehydration tack 4 which serves as laundry sink is arranged in a tank 2 at drawing 2. The dehydration tack 4 has many dehydration holes 5 in the circumferential flank, and is arranging the agitator body 6 in an inner pars basilaris ossis occipitalis.

[0011] Moreover, the drive 7 is arranged in the lower part section besides a tank 2. A motor 8, clutch equipment 9, and a brake gear 10 constitute this drive 7, and it controls the above-mentioned dehydration tack 4 at the time of wash, carries out the rotation drive of the agitator body 6, and is made to carry out the rotation drive of the dehydration tack 4 with an agitator body 6 by them at the time of dehydration.

[0012] Furthermore, the brake drum 11 with which both the above-mentioned brake gears 10 consider rotation as a dehydration tack 4, The brake motor 13 which consists of the geared motor which solves braking of a dehydration tack 4 by lengthening with the wire which does not illustrate the brake band 12 around which this was looped, and a brake band 12, and making it estrange from a brake drum 11 constitutes. While controlling a dehydration tack 4 as mentioned above at the time of wash, a braking halt of this dehydration tack 4 under rotation [ solve inhibition of a dehydration tack 4 at the time of dehydration, and ] at the time of the lid disconnection mentioned later is carried out.

[0013] In addition, there is a brake shoe which is not illustrated in the inner circumference section of the above-mentioned brake band 12, and magnitude (area) of this is made into twice the conventional thing. Moreover, the brake band 12 is energized so that the pressure welding of the above-mentioned brake shoe may be carried out to a brake drum 11 with the spring which is not illustrated, it enlarges the wire size (diameter) of this spring with 1.2 [mm] to 2.0 [mm] of the conventional thing, and is increasing the damping force of a brake gear 10 by these more sharply than the conventional thing.

[0014] Moreover, the motor 8 is decorated with the rotational-speed sensor 14 which consists of the magnet board which rotates with the revolving shaft, and this and rotation location detection equipments, such as a corresponding hall device, as a rotational-speed detection means to detect the degree of rotary speed of a motor 8, as a result the rotational speed of a dehydration tack 4, although not illustrated in detail.

[0015] In addition, the drain valve 15 and exhaust hose 16 for draining out of a tank 2 are also arranged, and said brake motor 13 makes the lower part section besides a tank 2 open a change and the above-mentioned drain valve 15 wide so that the driving force of a motor 8 may get across clutch equipment 9 to a dehydration tack 4 and an agitator body 6 at the same time it solves braking of a dehydration tack 4.

[0016] On the other hand, while having equipped with the top covering 17 on a tank 1 and forming the washing entrance 18 in the center section of this, the lid 19 which opens and closes this entrance 18 is installed, and at least the feed valve 20 which supplies water in a dehydration tack 4 at the back section, and the water which detects the water level in a tank 2 are installing the sensor 21 inside.

[0017] And the control unit 22 is further installed inside the anterior part of the above-mentioned top covering 17. This control device 22 is what functions as a control means which controls a brake gear 10 like the after-mentioned. As it consists of the microcomputer and is shown in drawing 3, while an actuation signal is inputted from the control unit 23 which consists of various actuation switches a lid-open close signal inputs from the lid switch 24 following closing motion of the above-mentioned lid 19 - - having -- further -- the above -- water level -- a sensor 21 -- about water -- a detection signal -- moreover, a rotational-speed detection signal is inputted from said rotational-speed sensor 14, respectively.

[0018] Carrying out a deer, a control unit 22 gives a drive control signal to the drive circuits 26-29 which drive the display 25 which consists of various display devices, said feed valve 20 and the motor 8

of a drive 7, and a brake motor 13, respectively based on the control program beforehand memorized by those input lists.

[0019] So, below, the contents of control at the time of lid 19 disconnection in dehydration by the above-mentioned control unit 22 are described, referring to drawing 1.

[0020] It is 850 [rpm], as it switches so that a drain valve 15 may be made to open wide while solving inhibition of the dehydration tack 4 according to a brake gear 10 by energizing a control device 22 to a brake motor 13 like previous statement at the time of dehydration, and the driving force of a motor 8 may get across clutch equipment 9 to a dehydration tack 4 and an agitator body 6, and the rotation drive of the dehydration tack 4 is carried out in an agitator body 6 by that cause and the rotational speed is shown in drawing 1. It reaches.

[0021] In this situation, if a lid 19 is opened wide, when the lid switch 24 operates, a control device 22 will recognize disconnection of that lid 19, will \*\*\*\* a brake motor 13, will make a brake gear 10 an operating state, and will give damping force at full to a dehydration tack 4.

[0022] It is 50 [rpm] which the rotational speed of a dehydration tack 4 descends quickly by this, and is a predetermined rotational speed in about 2 seconds. It reaches. Then, a control device 22 recognizes it with the rotational-speed detection signal from the rotational-speed sensor 14, and energizes it to a brake motor 13, and braking of the dehydration tack 4 by the brake gear 10 is canceled. And a brake motor 13 is \*\*\*\*(ed) after the 1 second, a brake gear 10 is made into an operating state, and damping force is again given to a dehydration tack 4. And further, after the 0.5 seconds, it energizes to a brake motor 13 and braking of the dehydration tack 4 by the brake gear 10 is canceled. Henceforth, braking discharge of the dehydration tack 4 according braking of the dehydration tack 4 according braking discharge of the dehydration tack 4 by energization of this brake motor 13 to \*\*\*\* to energization is performed for 0.5 seconds, it continues energizing to a brake motor 13 after that, and controlling a dehydration tack 4 for 0.5 seconds, for 1 second, is continued.

[0023] In addition, he makes it extent which is not made to estrange a brake band 12 completely, but loosens it, and is trying to give damping force again to a dehydration tack 4 in this condition from a brake drum 11 by performing braking discharge of the above-mentioned dehydration tack 4 small time amount (1 second or 0.5 seconds) every by turns [ of a dehydration tack 4 / braking and by turns ].

[0024] Thus, 50 whose rotational speed of a dehydration tack 4 is a predetermined value in the thing of this configuration when making a dehydration tack 4 control [rpm] Until it descends A brake gear 10 is operated fully and it is 50 [rpm]. After descending Are the thing it was made to operate intermittently and this will loosen damping force just before a halt. since it is avoided that the so-called brake is slammed -- a dehydration tack 4 -- an impact and counteraction -- it can be few, and can be made to stop promptly in about 6 seconds, as shown in drawing 1 now, and safety can be raised.

[0025] Moreover, 200-100 which are the resonance point of a tank 1 in the case of the thing of this configuration [rpm] Since it comes to pass also through a place for a short time, resonance vibration of the tank 1 can also be lessened.

[0026] In addition, this invention is not limited only to the example which described above and was shown in the drawing, about application in the 2 tub type washing machine except the concrete time amount of the chip box which operates intermittently the brake gear 10 at the time of dehydration tack 4 braking especially, the count of concrete, or a dehydration combination washing machine, and other points, within limits which do not deviate from a summary, is changed suitably and can be carried out.

[0027]

[Effect of the Invention] By the above description so that clearly the washing machine of this invention In what carries out the rotation drive of the dehydration tack by the motor, and dehydrates the washing Provide a rotational-speed detection means to detect the rotational speed of a dehydration tack besides providing the brake gear which brakes the dehydration tack, and when making a dehydration tack control After operating a brake gear, when it is judged that the rotational speed of a dehydration tack descended from the detection result by the rotational-speed detection means to the predetermined value Henceforth, it cannot be characterized by providing the control means which carries out control which operates a brake gear intermittently, a dehydration tack can be stopped sufficiently quickly by it, without

being accompanied by migration of the noise and the whole washing machine, and the outstanding effectiveness that safety may be raised is done so.

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[Translation done.]



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DESCRIPTION OF DRAWINGS

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[Brief Description of the Drawings]

[Drawing 1] The property Fig. set by the timing diagram which shows one example of this invention

[Drawing 2] The whole fracture side elevation

[Drawing 3] Outline electrical-and-electric-equipment block diagram

[Drawing 4] The drawing 1 equivalent Fig. showing the conventional example

[Description of Notations]

In 4, a brake gear and 14 show a rotational-speed sensor (rotational-speed detection means), and, as for a dehydration tack and 8, 22 shows a control unit (control means), as for a motor and 10.

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[Translation done.]

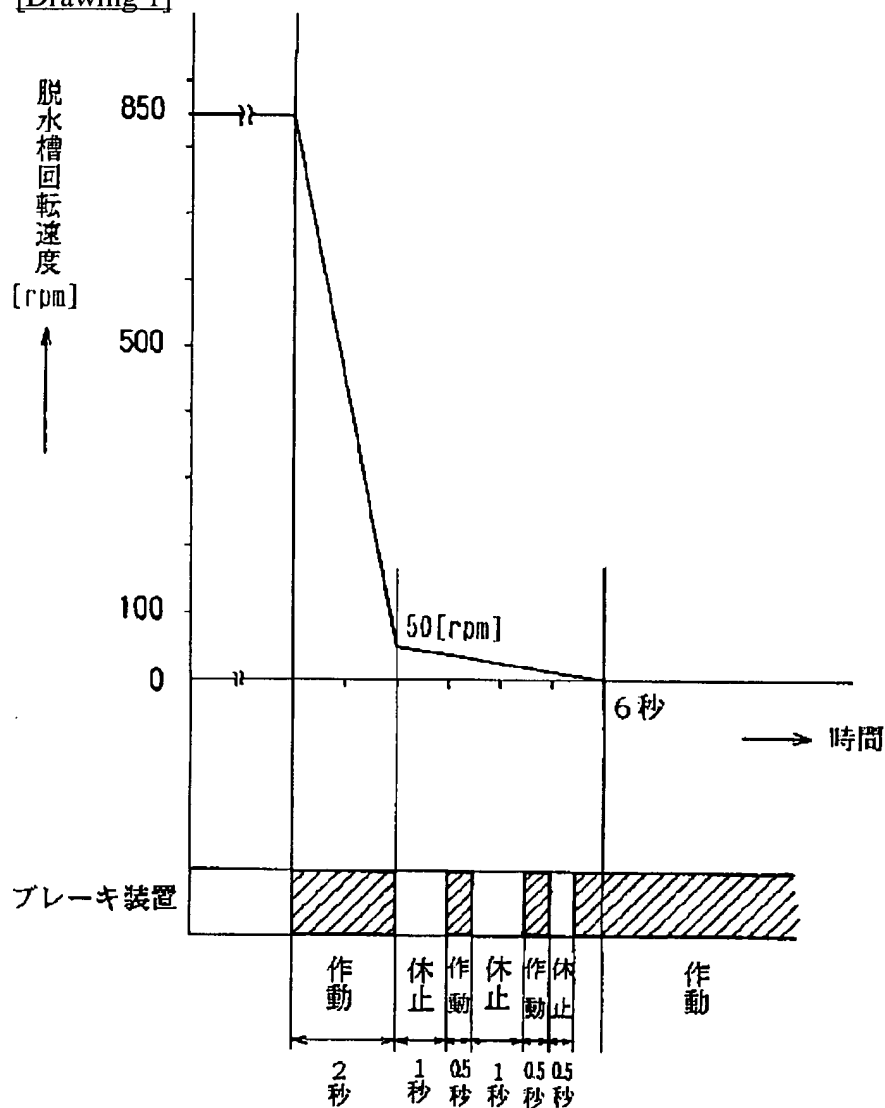
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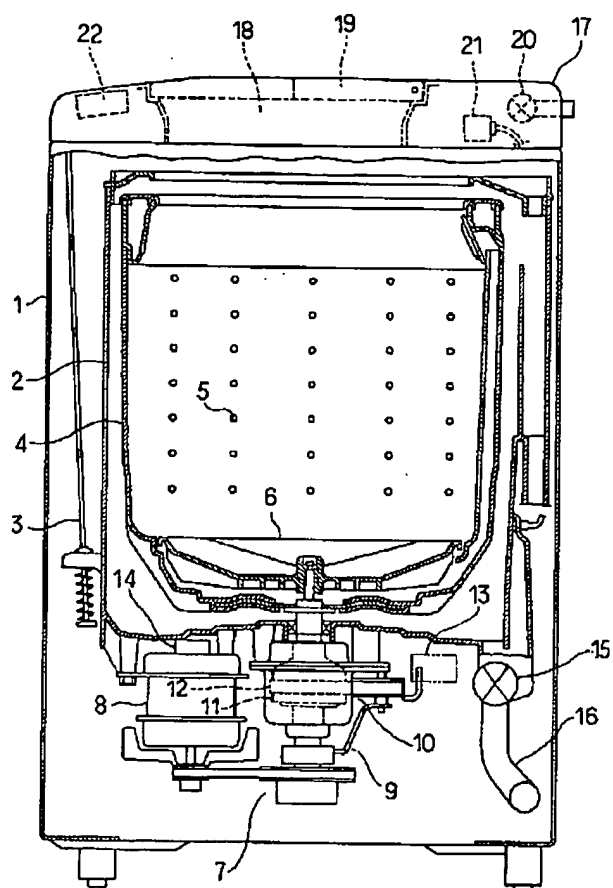
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## DRAWINGS

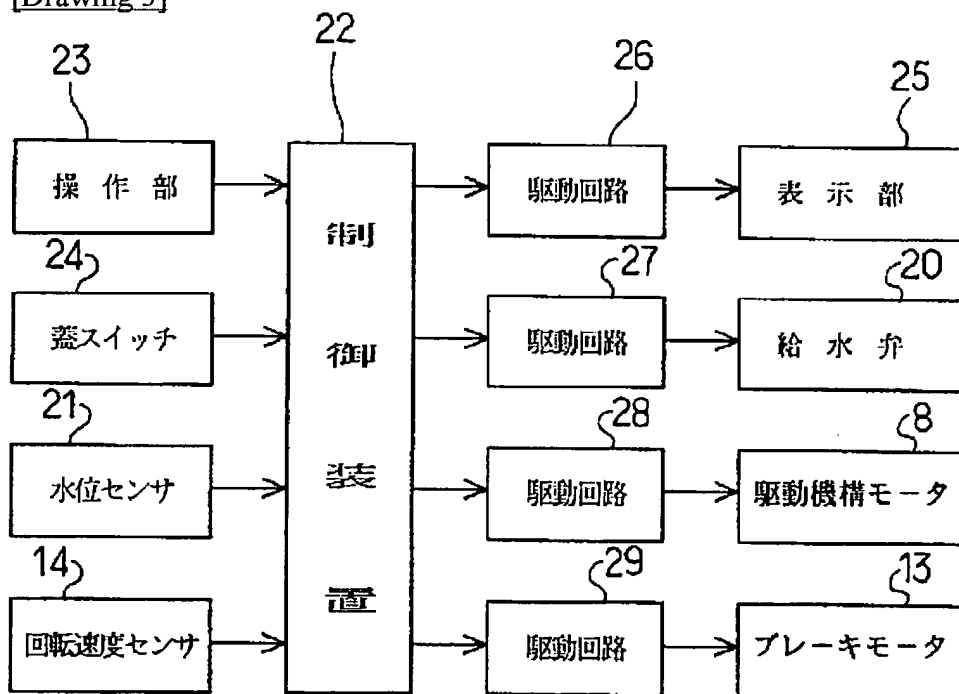
[Drawing 1]



[Drawing 2]



[Drawing 3]



[Drawing 4]